



SERVICE BULLETIN No. 284 for members of RADIO MANUFACTURERS SERVICE

A PHILCO Service Plan

Specifications

TYPE OF CIRCUIT: A.C. operated, superheterodyne with automatic volume control, Pentode audio output, and covers the standard broadcast and state police frequencies.

POWER SUPPLY:	Frequency Cycles	Power Consumption
Voltage		
115	50 to 60	40 watts
115	25 to 40	40 watts

INTERMEDIATE FREQUENCY: 470 K.C.

R.F. TUNING RANGE: 540 to 1720 K.C.

AUDIO OUTPUT: 2 watts.

TUBES USED: Five: One 6A7, Det. Osc.; One 78, I.F.; One 75, 2nd Det., 1st Audio; One 41, Output, and One 84, Rectifier.

TUNING MECHANISM: 8 to 1 Ratio using Pulley and Cord.

CABINET: Type "T".

Alignment of Compensators

EQUIPMENT REQUIRED: (1) Signal Generator, using a fundamental frequency range covering the tuning and intermediate frequencies of the receiver. Philco Model 088 Signal Generator which has a fundamental frequency range from 110 to 20,000 K.C. is the correct instrument for this purpose; (2) Output Meter, Philco Model 025A Circuit Tester incorporates a sensitive output meter and is recommended; (3) Philco Fibre Handle Screw Driver, Part No. 27-7059 and Fibre Wrench, Part No. 3164.

OUTPUT METER: The 025A Output Meter is connected to the plate and cathode terminals of the 41 tube. Adjust the meter to use the (0-30) volt scale and advance the attenuator control of the generator until a readable indication is noted on the output meter after signal is applied.

DIAL CALIBRATION: In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows:

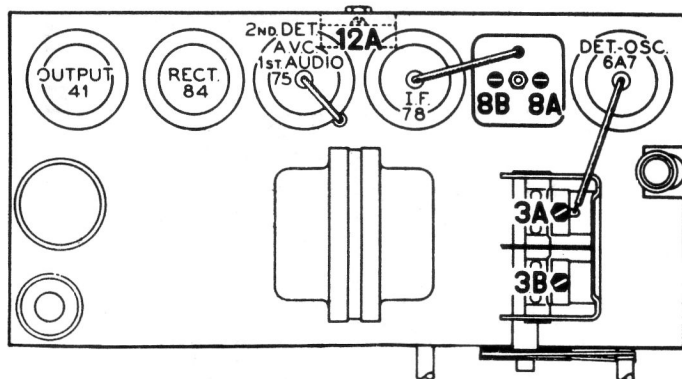


FIG. 2.—Locations of Compensators

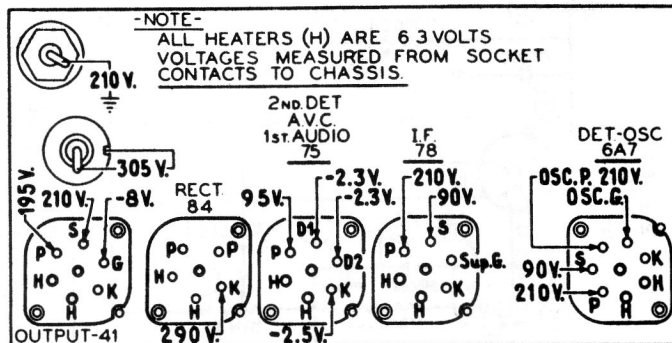


FIG. 1.—Socket Voltages—Underside of Chassis View.

The Voltages indicated by arrows were measured with a Philco 025A Circuit Tester which contains a sensitive voltmeter. Volume Control at minimum—Tuning condenser set for no signal—line voltage 115 A.C.

- 1 Turn the tuning condenser to maximum capacity position (plates fully meshed).
- 2 Holding the tuning condenser in this position, turn the pointer until it is $\frac{1}{8}$ of an inch below the three lines of the scale at the 550 K.C. end. (See Fig. 3.) This is the correct position of pointer at maximum capacity of tuning condenser.

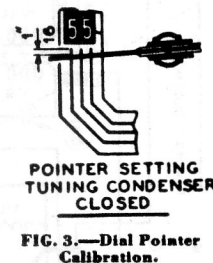


FIG. 3.—Dial Pointer Calibration.

Intermediate Frequency Circuit

Insert the signal generator shielded output lead into the generator. Connect the other end of the output lead through a .1 mfd. condenser to the grid of the 6A7 Det. Osc. tube, and the ground connection of the signal generator to the chassis. Set the Signal Generator and receiver controls, and adjust the I.F. compensators as follows:

- 1 Set Signal Generator at 470 K.C. for maximum output.
- 2 Turn the receiver dial to 580 K.C.
- 3 Receiver volume control maximum.
- 4 Adjust compensators, (12A), (8B), (8A), for maximum output. If the output meter goes off scale when adjusting the compensators, retard the signal generator attenuator.

Radio Frequency Circuit

TUNING RANGE: 540 to 1720 K.C.

- 1 With one end of the shielded lead of the signal generator output lead in the "Med." jack, connect the other end through a 100 mmfd. condenser to the white aerial wire (rear of chassis). Connect the signal generator ground to the brown lead or to the chassis of the receiver.
- 2 Set the controls and adjust the R.F. compensators as follows:

Signal Generator Volume Control Max.	and Receiver Dial 1500 K.C.	R.F. Compensators in Order (3B) (3A)
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Replacement Parts Model 38-C12

Schematic No.	Description	Part No.
1	Antenna Transformer	32-2583
2	Condenser (0.05 mfd. tubular)	30-4444
3	Tuning Condenser (Assembly)	31-2068
4	Compensator (Part of tuning condenser 3)	
5	Resistor (51,000 ohms, 1/2 watt)	33-351344
6	110 mmfd. mica	30-1031
7	Oscillator Transformer	32-2784
8	First I.F. Transformer	32-2672
9	Resistor (2 megohms)	33-520344
10	Condenser (0.03 mfd. tubular)	30-4449
11	Resistor (40,000 ohms, 1/2 watt)	33-340344
12	Second I.F. Transformer	32-2674
13	Resistor (51,000 ohms, 1/2 watt)	33-351344
14	Volume Control	33-9147
15	Condenser (0.01 mfd. tubular)	30-4479
16	Resistor (4 megohms, 1/2 watt)	33-540344
17	Condenser (250 mmfd. mica)	30-1032
18	Resistor (190,000 ohms, 1/2 watt)	33-419344
19	Condenser (0.01 mfd. tubular)	30-4169
20	Resistor (490,000 ohms, 1/2 watt)	33-449344
21	Condenser (0.01 mfd. tubular)	30-4169
22	Output Transformer	32-7904
23	Resistor (70 ohms, 1/2 watt)	33-070344
24	Resistor (250 ohms, 1/2 watt)	33-1259
25	Condenser (Electrolytic 4 mfd.)	30-2236
27*	Field coil assembly (not supplied; see Note)	
28	Condenser (Electrolytic mfd.)	12 30-2235
29	Power Transformer (115V, 50 to 60 cycle)	32-7826
	Power Transformer (115V, 25 to 40 cycles)	32-7867
30	Condenser (0.01 mfd., .01 mfd.)	3903-DG
31	Pilot Lamp	34-2068
	Bracket (Dial)	33-9099

* Entire Speaker must be replaced when field coil is open or damaged.

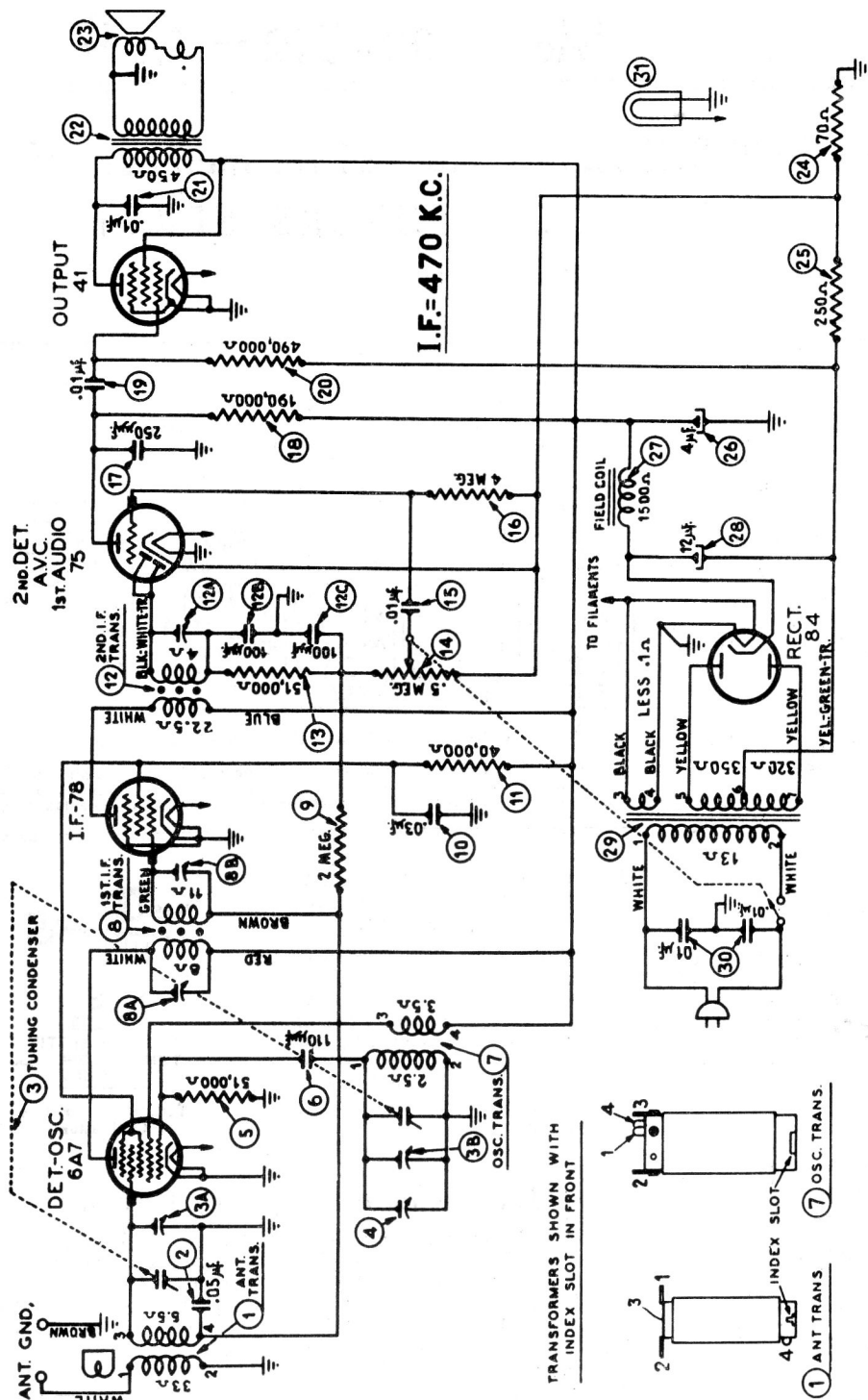


FIG. 4.—Schematic Diagram, Model 38-C12

Cable (Power)	L-2839
Clip (R.F. Trans., small)	28-5002
Clip (R.F. Trans., large)	28-5003
Clip (Tuning Shaft)	28-5610
Dial Assembly	31-2097
Dial Pointer	28-5185
Dial Drive Drum	31-2082
Dial Drive Spring	28-6662
Knob (Tuning and Volume)	28-3751
Shaft Assembly (Tuning)	27-4604
Shield (Tube)	38-9102
Socket (6 prong)	28-5059
Socket (7 prong)	27-6036
Socket (5 prong)	27-6037
Stop-Rubber	27-4540
Speaker Model BO-3	36-1369
Pilot Lamp Assembly	38-9041
Scale Protector	27-5539

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